International Journal of Community Medicine and Public Health
Kumaraswamy M et al. Int J Community Med Public Health. 2022 Dec;9(12):4648-4654
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20223227

Original Research Article

A study on over-the-counter drug use in community pharmacies

M. Kumaraswamy, Jithin*, Haritha K., Jithin T. John, Dince Baby

Department of Pharmacy Practice, Sri Adichunchanagiri College of Pharmacy, B. G Nagara, Karnataka, India

Received: 27 October 2022
Revised: 18 November 2022
Accepted: 19 November 2022

***Correspondence:**
Dr. Jithin,
E-mail: drjithinmathews@gmail.com

ABSTRACT

Background: The usage of over-the-counter (OTC) medications has steadily increased in recent years. Improper use of OTC medications might result in health and other drug-related issues. Easy access to OTC medications has become a more critical concern in developing countries. Objective of the study was to assess the OTC drugs dispensed in community pharmacies.
Methods: A prospective cross-sectional study was conducted in selected community pharmacies. To evaluate the OTC drugs dispensed; 700 participants were polled using questionnaires through a validated data collection form, and a patient interview respectively. Descriptive statistics and multivariate logistic regression were performed using statistical package for the social sciences (SPSS) (version 20). The Chi-square test was used to test for significant differences between groups ($p<0.05$).
Results: A total of 700 patients were recruited for the study to assess the use of OTC drugs. Analgesics/NSAIDs are the most often used OTC medications, accounting for (30.4%), followed by antacids (15.7%). The primary sources of information to purchase OTC medications were taken from community phapharmacists1.6%). Recurrence of minor ailments (68%) is the major influencing factor for OTC drug purchase, whereas (80.9%) agree that OTC medication is cheaper and more convenient.
Conclusions: As per the findings of the study; OTC medication dispensing is prominent, and there is a need for awareness programs to ensure rational drug usage.

Keywords: OTC drugs, Community pharmacy, Rational drug usage

INTRODUCTION

Over-the-counter medicines, often known as OTC or non-prescription medicine are those medications that may be purchased by anybody without a medical prescription. They are both safe and effective when used according to the instructions on the label and as directed by your health care professional. Medication patterns are an important health indicator because they represent illness frequency and treatment resource consumption in a community. As a result, OTC medications are frequently utilized as a crucial indication in assessing the success of the health sector.[1]

OTC medications, which may be acquired without a medical prescription, are thought to be quite safe and suitable for use without the supervision of healthcare experts. According to the World Health Organization (WHO) anatomical therapeutic chemical (ATC) classification, analgesics, laxatives, antithrombotic agents, antacids, cough and cold preparations, antihistamines, dermatological, throat preparations, nasal preparations, and anti-diarrheal preparations are the ten categories. On the other hand, inappropriate self-medication with OTC drugs can have serious repercussions (including death), especially in pregnant and nursing mothers, pediatric and geriatric populations, and patients with co-morbidities.[2]

The illegal sale of prescription-only medications is a significant regulatory concern. Over half of all antibiotics marketed worldwide are sold without a medical prescription. Although the selling of antibiotics over the counter is frequent in the industrialized world, it is more common in poorer nations such as India, where regulatory efforts are lacking.[3]

In recent years, the usage of OTC medications has significantly grown. This tendency can be ascribed to several variables, including improved patient knowledge and accessible availability. Many nations consider OTC medications as a distinct class of pharmaceuticals and have enacted legislation governing their usage. There are currently no guidelines in India for the licensing of OTC drugs. There is no special category for OTC medications in India, and products that do not fall within the prescription medicine schedule are often offered as over-the-counter medicines.[4]

Incorrect use of over-the-counter drugs might result in health and other drug-related issues. A drug-related problem (DRP) is an incident or scenario involving drug therapy that interferes with anticipated health results, either directly or indirectly. Pharmacists are highly trained professionals who have a professional obligation to provide effective patient counselling to guarantee the safe use of pharmaceuticals. They play a vital and proactive role in preventing and resolving DRPs and thus in preventing adverse events, avoiding extra costs resulting from inappropriate use of medications, and adding value to patient safety.

Pharmaceutical counselling provided by community pharmacies is particularly crucial when medications are purchased over-the-counter (OTC), without advice given by a physician.[5]

Easily accessible OTC medications are considered harmless by consumers and thus often underestimate the potential risks. They have an incomplete awareness of several risk areas of OTC medications, such as those relating to drug interactions and misuse/abuse.[5]

Pharmacists are the most accessible healthcare professionals on the front lines for the general population, and presumably the most equipped professionals with formal knowledge and training on self-treatment and over-the-counter pharmacotherapy. As a result, pharmacists in community settings have significant responsibility and opportunity to respond to patients' minor complaints and safeguard them from the risks associated with self-medication.[6]

The pattern of OTC medication varies by population and is impacted by a variety of factors including age, gender, income, self-care orientation, educational level, medical expertise, prior experience, satisfaction, and the severity of the condition.

Objectives

Primary objective

Primary objective of the study was to assess the OTC drug use in community pharmacies.

Secondary objectives

Secondary objectives were: to study the demographic profile of the study participants, to assess the class of OTC drugs most commonly dispensed, to assess the factors influencing to the choice of OTC drugs, and to assess the attitude of patients toward OTC drugs.

METHODS

A prospective cross-sectional study was conducted in selected community pharmacies for a period of 6 months from February 2021 to July 2021, after getting permission from institutional ethics committee (reference no: IEC/AH&RC/AC/016/2021). Patients who visit neighbourhood pharmacies and are prepared to participate by signing the informed consent form are included in the study, and those who are unwilling to do so are excluded. To evaluate the OTC drugs dispensed; 700 participants were polled using questionnaires, a validated data collection form, and a patient interview respectively. Sample size was calculated using a standard formula.[7] Descriptive statistics and multivariate logistic regression were performed using statistical package for the social sciences (SPSS) (version 20).

The Chi-square test was used to test for significant differences between groups ($p<0.05$). In a few cases, participants did not answer all of the questions, resulting in missing data that was not approximated or utilized in the study.

RESULTS

A total of 700 patients were recruited for the study to assess the use of OTC drugs. Analgesics/NSAIDs are the most often used OTC medications, accounting for 213 (30.4%), followed by antacids 110 (15. 7%). The primary sources of information to purchase the OTC medications were taken from community pharmacist 501 (71.6%).

Recurrence of minor ailments 476 (68%) is the major influencing factor for OTC drug purchase, whereas 566 (80.9%) agree that OTC medication is cheaper and more convenient.

Out of 700 patients, 505 were under the age group (15-47) out of which 292 were males and 213 were females, 134 were under the age group (48-63) out of which 87 were males and 47 were females and the remaining were under the age group (>63) out of which 39were males and 22 were females (Figure 1).

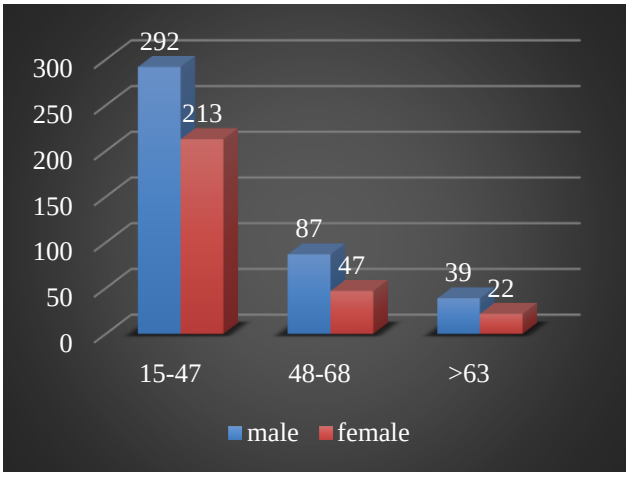

Figure 1: Socio demographic characteristics of study participants.

It describes among all the medication classes dispensed in the community, analgesic/NSAIDS 30.4% were most common followed by antacids 15.7%, cough and cold medication 13%, and antipyretics12.7%. And the least dispensed medication was anti-helminthic 0.9% (Table 1).

Table 1: Most often dispensed class of OTC drugs (n=700).

Drugs	Number of drugs	Percentage
Analgesic /NSAIDs	213	30.40
Antipyretic	89	12.70
Antibiotics	20	2.90
Skin care products	40	5.70
Antacids and acid reducers	110	15.70
Anti-allergic	43	6.10
Antiemetic	12	1.70
Cold and cough medicines	91	13.00
Anti-diarrheal	26	3.70
Anti-helminthic	6	0.90
Nutrient/vitamin/immune booster supplements	67	9.60
Other (oral care, sexual contraceptive, laxative)	40	5.70
Total	700	100

The above figure shows that the common reason quoted for the usage of OTC drugs where is treating minor ailments 390 (55.71 %), time-saving 103 (14.71%), saving money 48(6.9%), and lack of awareness 22 (3.14%), and the remaining 137 people have chosen multiple choices (Table 2).

Out of 700 patients, the majority of the population 517 (73.90%) believe that minor elements can be successfully treated with over-the-counter medication (Figure 2).

Table 2: Factors influencing to purchase of OTC drug.

Factors	Frequency	Percentage
Consultation cost	48	6.9
Lack of time to consult a doctor	103	14.71
Recurrence of minor ailment	390	55.71
Lack of awareness	22	3.14
Consultation cost, lack of time to consult	21	3
Consultation cost, recurrence of minor ailment	19	2.71
Consultation cost, lack of awareness	2	0.28
Lack of time, recurrence of minor ailment	33	4.71
lack of time, lack of awareness	17	2.42
Recurrence of minor ailment, lack of awareness	3	0.42
Consultation cost, lack of time to consult doctor, recurrence of minor ailment	21	3
Consultation cost, lack of time to consult doctor, lack of awareness	11	1.57
Recurrence of minor ailment, lack of time to consult doctor, lack of awareness	3	0.43
Consultation cost, lack of time to consult doctor, recurrence of minor ailment, lack of awareness	7	1
Total	700	100

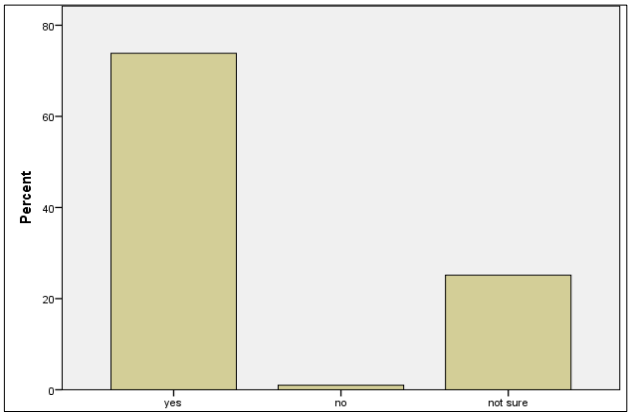

Figure 2: Is it successful to treat minor ailments with OTC drugs.

Table 3: Association of age groups with questionnaire.

Questions		Age group (years)			Chi-square value	P value
		15 to 47	48 to 63	More than 63		
Q1) Do you take medication on your own without seeing a doctor						
Yes	N	432	107	43	10.725	0.013*
	%	85.54	79.90	70.50		
No	N	73	27	18		
	%	14.45	20.10	29.50		
Q2) Consideration while buying OTC medicines						
Brand name	N	189	41	14	19.662	0.002*
	%	37.42	30.60	23.00		
Anything given by a pharmacist	N	288	84	40		
	%	57.02	62.70	65.60		
Price	N	18	7	7		
	%	3.60	5.20	11.50		
Side effect	N	10	2	0		
	%	1.98	1.50	0.00		
Q3) Preferred source of purchase of drug						
Community pharmacist	N	365	102	34	25.894	0.002*
	%	72.27	76.10	55.70		
Neighbors	N	37	3	6		
	%	7.40	2.20	9.80		
Family members and friends	N	57	25	15		
	%	11.50	18.70	24.60		
Social media	N	46	4	6		
	%	9.30	3.00	9.80		
Q5) OTC medication is cheaper and more convenient						
Yes	N	402	121	43	12.791	0.005*
	%	79.60	90.30	70.50		
No	N	103	13	18		
	%	20.39	9.70	29.50		
Q6) Class of drugs?						
Analgesic/NSAIDS	N	144	45	24	85.055	0.001*
	%	29.00	33.60	39.30		
Antipyretic	N	70	16	3		
	%	13.86	11.90	4.90		
Antibiotics	N	13	4	3		
	%	2.60	3.00	4.90		
Skincare products	N	30	4	6		
	%	6.00	3.00	9.80		
Antacids and acid reducers	N	66	32	12		
	%	13.30	23.90	19.70		
Anti-allergic	N	32	10	1		
	%	6.40	7.50	1.60		
Antiemetic	N	8	2	2		
	%	1.60	1.50	3.30		
Cold and cough medicines	N	74	12	5		
	%	14.65	9.00	8.20		
Anti-diarrheal	N	16	9	1		
	%	3.20	6.70	1.60		
Anthelminthic	N	6	0	0		
	%	1.18	0.00	0.00		
Nutrient/vitamin/immune booster supplement	N	53	9	5		
	%	10.70	6.70	8.20		

Continued.

Questions		Age group (years)			Chi-square value	P value
		15 to 47	48 to 63	More than 63		
Others (oral care, sexual contraceptive, laxative)	N	35	4	1		
	%	7.00	3.00	1.60		
Q7) Reasons for opting for OTC						
Consultation cost	N	84	31	14	9.166	0.689
	%	16.43	23.10	23.00		
Lack of time to consult a doctor	N	155	41	20		
	%	30.69	30.60	32.80		
Recurrence of minor ailment	N	335	98	43		
	%	66.33	73.10	70.50		
Lack of awareness	N	47	9	7		
	%	9.50	6.70	11.50		

*Statistical significance set at 0.05SS.

Interpretation

The Chi-square test displays the majority of 15-47-year-old people (85.54%) consume medication on their own without seeing a doctor (χ^2 value=10.71; p=0.013) compared to other age groups. Similarly, the bulk of 15-47-year-old people (39.40%) considers brand name and side effects, and the majority of more than 63 years of age group people consider price and anything given by a pharmacist while buying OTC medication (χ^2 value=19.66; p=0.002). The majority of 15-47-year-old people (72.27%) prefer community pharmacists as a source of purchase of drugs (χ^2 value=25.89; p=0.002). The majority of 48–63-year age group subjects agree that OTC medication is cheaper and more convenient (χ^2value=12.79; p=0.005); bulk of antipyretic, anthelminthic, cold, and cough medicines were consumed by 15-47 years of age groups whereas the rest of the class of drugs were mostly consumed by 40-63 years and above 63 years of age group (χ^2 value=85.05; p=0.001).

DISCUSSION

Although OTC medications are typically safe, their misuse can result in difficulties and adverse events that hurt public health. These drugs are ingested before or at the onset of symptoms due to their greater availability and ease of acquisition.

The primary objective of this work was to assess the OTC drug use in community pharmacies and the secondary objectives were to study and assess the patient demographic profile, the class of OTC drugs most commonly dispensed, the factors influencing to choose of OTC drugs, and the attitude of the patient towards OTC drug usage.

Rather than a visit to the doctor, the patients approach a pharmacist for minor ailments such as cough, cold, allergies, pain, fever, acidity, diarrhea, and skin-related conditions. Even though antimicrobials belong to the category of prescription drugs in India, they are dispensed without a prescription raising the concern regarding antimicrobial resistance.[4]

The drugs consultative committee (DCC) on 18 September 2017 recommended the creation of a separate category for OTC drugs that can be legally sold over the counter. A subcommittee was formed to examine the various schedules to which the drugs marketed in India belonged, i.e., schedule H, H1, G, X, and K. In addition, the committee was also assigned the role of suggesting a list of drugs that could be considered for marketing as OTC, along with conditions to be followed. The OTC drugs for illnesses like allergies, fever, vomiting, muscle discomfort, inflammatory conditions, antacids, external preparations for skin, and hormonal contraceptives have been examined for inclusion in the list.[4] In the current study, similar minor ailments were the reason for the subjects to opt for OTC drugs.

Even though in Bellur cross, OTC drugs are strictly controlled to be sold in pharmacy outlets only, self-medication with OTC drugs was found to be prevalently accompanied by highly risky practices. The prevalence of OTC drug usage is similar to a few studies conducted in Asmara (93.7%).[1] Because of the difference in the target population among Asmara, Zabol University, Sweden, Germany, and the current study caution should be taken during the result comparison.[1,8-10]

Analgesics are the most frequently consumed OTC drugs. Therefore, analgesics constitute the largest OTC market worldwide. Analgesics were the most often prescribed OTC medications, accounting for (49.1%), according to a study by Sanchez-Sánchez et al. The current study accounts for (30.4%).[11]

As in our study, antipyretics contributed (12.7%) and cough medicines (13%), respectively, although in a study by Subashini et al, antipyretics contributed (61.3%) and cough medicines (56.7%).[2]

The consumption of analgesics NSAIDs in our study population was higher and similar to that reported in other studies, such as the study conducted by Tesfamariam et al, Yla-Rautio et al, and Booth et al. Many studies have indicated that long-term usage of NSAIDs can lead to peptic ulcers, renal failure, stroke, and heart disease.[1,5,12]

One of the most detrimental effects of using antibiotics for viral or nonbacterial diseases is the acceleration of antibiotic resistance. As a result of the requirement for broader-spectrum medicines, more prescriptions, and hospitalizations due to treatment failures, antibiotic resistance places an additional financial burden on the patient. Antibiotics shouldn't be prescribed for nonbacterial illnesses that don't need them.

The findings of our study showed that buying and selling antibiotics may be done without having to give the pharmacy professional a prescription. Antibiotic resistance will be encouraged by buying medicines without a prescription, which can potentially lead to serious adverse events such as drug side effects, excessive costs, and difficulties.[3]

Pharmacists play a crucial role in screening for certain illnesses, recommending self-care treatments, and/or offering referral help when necessary. An example of offering appropriate self-care information and guidance through HCPs, including pharmacists, is the global respiratory infection partnership for treating upper respiratory tract infections (such as coughs and colds) without the use of antibiotics.[13]

The World Gastroenterology Organization Global Guidelines for community-based management of common gastrointestinal symptoms provide resource-sensitive treatment recommendations based on the point of care.[14]

Due to time constraints, it was unable to get all of the patient's information and some patients expressed a lack of interest in taking part in the study. Because of the current global pandemic, few patients responded out of fear. Few pharmacists refused to permit us to collect data from the pharmacies.

CONCLUSION

A legally recognized class of OTC pharmaceuticals, patient awareness programs, and the support of pharmacists and pharmaceutical companies are required to maximize the usage of OTC medications in India. As a corrective measure to the habit of reading package inserts, The Ministry of Health in India should control regulations governing the manufacture of patient information booklets in a local language for easy comprehension. To increase the use of OTC pharmaceuticals and reduce the prevalence of negative effects associated with inexperienced use, national health policies pertaining about should be targeted toward these populations and drug categories.

ACKNOWLEDGEMENTS

Authors would like to thank guide Mr. M. KUMARASWAMY, principal Dr. B Ramesh, and also departmental teaching team Dr. Rajesh Venkataraman, Mr. Satish Kumar B.P, and Mr. Raindra B. N.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Tesfamariam S, Anand IS, Kaleab G, Berhane S, Woldai B, Habte E, Russom M. Self-medication with over-the-counter drugs, the prevalence of the risky practice and its associated factors in pharmacy outlets of Asmara, Eritrea. BMC Public Health. 2019;19(1):1-9.
2. Subashini N, Udayanga L. Demographic, socio-economic and other associated risk factors for self-medication behavior among university students of Sri Lanka: a cross-sectional study. BMC Public Health. 2020;20:1-3.
3. Damisie G, Hambisa S, Yimam M. Over-the-counter sale of antibiotics at drug stores found in Mizan-Aman Town, Southwest Ethiopia: a cross-sectional simulated client visit study. J Pharm (Cairo). 2019;3510659.
4. Marathe PA, Kamat SK, Tripathi RK, Raut SB, Khatri NP. Over-the-counter medicines: Global perspective and Indian scenario. J Postgrad Med. 2020;66(1):28.
5. Ylä-Rautio H, Siissalo S, Leikola S. Drug-related problems and pharmacy interventions in non-prescription medication, with a focus on high-risk over-the-counter medications. Int J Clin Pharm. 2020;42(2):786.
6. Wazaify M, Elayeh E, Tubeileh R, Hammad EA. Assessing insomnia management in a community pharmacy setting in Jordan: A simulated patient approach. PloS One. 2019;14(12):e0226076.
7. Lemeshow S, Hosmer DW, Klar J, Lwanga SK, World Health Organization. Adequacy of sample size in health studies. Chichester: Wiley. 1990.
8. Hashemzaei M, Afshari M, Koohkan Z, Bazi A, Rezaee R, Tabrizian K. Knowledge, attitude, and practice of pharmacy and medical students regarding self-medication, a study in Zabol University of Medical Sciences; Sistan and Baluchestan province in the south-east of Iran. BMC Med Educ. 2021;21(1):1-10.
9. Hedenrud T, Andersson Sundell K, Martinsson J, Håkonsen H. Attitudes towards sales and use of over-the-counter drugs in Sweden in a reregulated pharmacy market: a population-based study. Int J Pharm Pract. 2019;27(1):17-24.
10. Eickhoff C, Hämmerlein A, Griese N, Schulz M. Nature and frequency of drug-related problems in self-medication (over-the-counter drugs) in daily community pharmacy practice in Germany. Pharmacoepidemiol Drug Safety. 2012;21(3):254-60.
11. Sánchez-Sánchez E, Fernández-Cerezo FL, Díaz-Jimenez J, Rosety-Rodriguez M, Díaz AJ, Ordonez FJ, Rosety MÁ, Rosety I. Consumption of over-the-

Counter Drugs: Prevalence and Type of Drugs. Int J Env Res Public Health. 2021;18(11):5530.
12. Booth S, Parsons R, Sunderland B, Sim TF. Managing migraine with the over-the-counter provision of triptans: the perspectives and readiness of Western Australian community pharmacists. Peer J. 2019;7:e8134.
13. Bell J, Dziekan G, Pollack C, Mahachai V. Self-care in the twenty-first century: a vital role for the pharmacist. Adv Therap. 2016;33(10):1691-703.
14. Hunt R, Quigley E, Abbas Z, Eliakim A, Emmanuel A, Goh KL, Guarner F, Katelaris P, Smout A, Umar M, Whorwell P. Coping with common gastrointestinal symptoms in the community: a global perspective on heartburn, constipation, bloating, and abdominal pain/discomfort May 2013. J Clin Gastroenterol. 2014;48(7):567-78.
15. Susheela F, Goruntla N, Bhupalam PK, Veerabhadrappa KV, Sahithi B, Ishrar SM. Assessment of knowledge, attitude, and practice toward responsible self-medication among students of pharmacy colleges located in Anantapur district, Andhra Pradesh, India. J Educ Health Promotion. 2018;7.
16. Wazaify M, Shields E, Hughes CM, McElnay JC. Societal perspectives on over-the-counter (OTC) medicines. Fam Pract. 2005;22(2):170-6.
17. Bradley CP, Riaz A, Tobias RS, Kenkre JE, Dassu DY. Patient attitudes to over-the-counter drugs and possible professional responses to self-medication. Fam Pract. 1998;15(1):44-50.
18. Kuang L, Liu Y, Wei W, Song X, Li X, Liu Q, Hong W, Liu Q, Li J, Chen Z, Fang Y. Non-prescription sale of antibiotics and service quality in community pharmacies in Guangzhou, China: A simulated client method. PloS One. 2020;15(12):e0243555.
19. Bahta M, Tesfamariam S, Weldemariam DG, Yemane H, Tesfamariam EH, Alem T, Russom M. Dispensing of antibiotics without prescription and associated factors in drug retail outlets of Eritrea: A simulated client method. PLoS One. 2020;15(1):e0228013.
20. Luketina-Sunjka M, Rancic N, Mihailovic N, Jakovljevic M. The impact of the socio-demographic characteristics of complementary and alternative medicine users in Serbia on OTC drug consumption. Front Public Health. 2019;7:303.
21. Damisie G, Hambisa S, Yimam M. Over-the-counter sale of antibiotics at drug stores found in Mizan-Aman Town, Southwest Ethiopia: a cross-sectional simulated client visit study. J Pharm. 2019;3510659.
22. World Health Organization. Antibiotic resistance. Available at: https://www.who.int/news-room/fact-sheets/detail/antibiotic-resistance. Accessed on 12 September 2022.
23. Grebenar D, Nham E, Likic R. Factors influencing pharmacists' over-the-counter drug recommendations. Postgrad Med J. 2020;96(1133):144-8.
24. Gilson AM, Stone JA, Reddy A, Chui MA. Exploring how pharmacists engage with patients about over-the-counter medications. J Am Pharm Assoc. 2019;59(6):852-6.
25. Shah S, Gilson AM, Jacobson N, Reddy A, Stone JA, Chui MA. Understanding the Factors Influencing Older Adults' Decision-Making about Their Use of Over-The-Counter Medications—A Scenario-Based Approach. Pharmacy. 2020;8(3):175.
26. Gilson AM, Xiong KZ, Stone JA, Jacobson N, Phelan C, Reddy A, Chui MA. Improving patient-pharmacist encounters with over-the-counter medications: A mixed-methods pilot study. Innov Pharm. 2020;11(1).

Cite this article as: Kumaraswamy M, Jithin, Haritha K, Jithin TJ, Dince B. A study on over-the-counter drug use in community pharmacies. Int J Community Med Public Health 2022;9:4648-54.